IN THE CLAIMS

Claim 1 (currently amended): A method of sensing and controlling a temperature of a resistive element configured for use in a read/write head of a magnetic data disk storage device, the method comprising:

detecting a voltage across the resistive element of said magnetic data disk storage device, the voltage varying as a function of a temperature of the resistive element;

comparing the voltage to a predetermined value to determine a variation of the voltage from the predetermined value; and

altering a power applied to the resistive element based on the variation, the temperature of the resistive element varying as a function of the altered applied power.

Claim 2 (original): A method according to claim 1, wherein the resistive element is selected from the group consisting of a read transducer, a write transducer, a heating element, and a temperature sensing material.

Claim 3 (original): A method according to claim 1, wherein the resistive element comprises material selected from the group consisting of magneto-resistive (MR) material, giant magneto-resistive (GMR) material, tunneling magneto-resistive (TuMR) material, current perpendicular to plane (CPP) material, and temperature sensing material.

Claim 4 (currently amended): A method of sensing and controlling a temperature of a resistive element configured for use in a read/write head of a magnetic data storage device, the method comprising:

detecting a voltage across the resistive element of said magnetic data storage device, the voltage varying as a function of a temperature of the resistive element;

comparing the voltage to a predetermined value to determine a variation of the voltage from the predetermined value; and

altering a power applied to the resistive element based on the variation, the temperature of the resistive element varying as a function of the altered applied power,

~~A method according to claim 1,~~ wherein detecting a voltage further comprises detecting a voltage across the resistive element using an output of a lowpass filter coupled to the resistive element.

Claim 5 (currently amended): A method of sensing and controlling a temperature of a resistive element configured for use in a read/write head of a magnetic data storage device, the method comprising:

detecting a voltage across the resistive element of said magnetic data storage device, the voltage varying as a function of a temperature of the resistive element;

comparing the voltage to a predetermined value to determine a variation of the voltage from the predetermined value; and

altering a power applied to the resistive element based on the variation, the temperature of the resistive element varying as a function of the altered applied power,

~~A method according to claim 1,~~ wherein detecting a voltage further comprises detecting a voltage across the resistive element when there is no power applied to the resistive element.

Claim 6 (original): A method according to claim 1, wherein altering a power applied to the resistive element comprises altering a voltage applied to the resistive element.

Claim 7 (original): A method according to claim 1, wherein altering a power applied to the resistive element comprises altering a current applied to the resistive element.

Claim 8 (currently amended): A method of sensing and controlling a temperature of a first resistive element configured for use in a read/write head of a magnetic data storage device, the method comprising:

detecting a voltage across a second resistive element of said magnetic data disk storage device thermally proximate to the first resistive element, the voltage varying as a function of a temperature of the second resistive element;

comparing the voltage to a predetermined value to determine a variation of the voltage from the predetermined value;

altering a power applied to the second resistive element based on the variation, the temperature of the second resistive element varying as a function of the altered applied power; and

affecting the temperature of the first resistive element with the temperature of the second resistive element due to the thermal proximity.

Claim 9 (original): A method according to claim 8, wherein the first resistive element is selected from the group consisting of a read transducer, a write transducer, a heating element, and a temperature sensing material.

Claim 10 (original): A method according to claim 8, wherein the second resistive element is selected from the group consisting of a read transducer, a write transducer, a heating element, and a temperature sensing material.

Claim 11 (original): A method according to claim 8, wherein the first or second resistive elements comprise material selected from the group consisting of magneto-resistive (MR) material, giant magneto-resistive (GMR) material, tunneling magneto-resistive (TuMR) material, current perpendicular to plane (CPP) material, and temperature sensing material.

Claim 12 (currently amended): A method of sensing and controlling a temperature of a first resistive element configured for use in a read/write head of a magnetic data storage device, the method comprising:

detecting a voltage across a second resistive element of said magnetic data storage device thermally proximate to the first resistive element, the voltage varying as a function of a temperature of the second resistive element;

comparing the voltage to a predetermined value to determine a variation of the voltage from the predetermined value;

altering a power applied to the second resistive element based on the variation, the temperature of the second resistive element varying as a function of the altered applied power; and

affecting the temperature of the first resistive element with the temperature of the second resistive element due to the thermal proximity.

~~A method according to claim 8,~~ wherein detecting a voltage further comprises detecting a voltage across the second resistive element using an output of a lowpass filter coupled to the second resistive element.

Claim 13 (currently amended): A method of sensing and controlling a temperature of a first resistive element configured for use in a read/write head of a magnetic data storage device, the method comprising:

detecting a voltage across a second resistive element of said magnetic data storage device thermally proximate to the first resistive element, the voltage varying as a function of a temperature of the second resistive element;

comparing the voltage to a predetermined value to determine a variation of the voltage from the predetermined value;

altering a power applied to the second resistive element based on the variation, the temperature of the second resistive element varying as a function of the altered applied power; and

affecting the temperature of the first resistive element with the temperature of the second resistive element due to the thermal proximity

~~A method according to claim 8,~~ wherein detecting a voltage further comprises detecting a voltage across the second resistive element when there is no power applied to the resistive element.

Claim 14 (original): A method according to claim 8, wherein altering a power applied to the second resistive element comprises altering a voltage applied to the second resistive element.

Claim 15 (original): A method according to claim 8, wherein altering a power applied to the second resistive element comprises altering a current applied to the second resistive element.

Claim 16 (currently amended): A system for sensing and controlling a temperature of a resistive element configured for use in a read/write head of a magnetic data storage device, the system comprising:

a resistive element of said magnetic data disk storage device having a voltage thereacross, the voltage varying as a function of a temperature of the resistive element;

comparison circuitry configured to compare the voltage across the resistive element with a predetermined value, and to generate an error signal based on the comparison; and

a control compensation module configured to receive the error signal and to alter a power applied to the resistive element based thereon, the temperature of the resistive element varying as a function of the altered applied power.

Claim 17 (original): A system according to claim 16, wherein the resistive element is selected from the group consisting of a read transducer, a write transducer, a heating element, and a temperature sensing material.

Claim 18 (original): A system according to claim 16, wherein the resistive element comprises material selected from the group consisting of magneto-resistive (MR) material, giant magneto-resistive (GMR) material, tunneling magneto-resistive (TuMR) material, current perpendicular to plane (CPP) material, and temperature sensing material.

Claim 19 (currently amended): A system for sensing and controlling a temperature of a resistive element configured for use in a read/write head of a magnetic data storage device, the system comprising:

a resistive element of said magnetic data storage device having a voltage thereacross, the voltage varying as a function of a temperature of the resistive element;

comparison circuitry configured to compare the voltage across the resistive element with a predetermined value, and to generate an error signal based on the comparison; and

a control compensation module configured to receive the error signal and to alter a power applied to the resistive element based thereon, the temperature of the resistive element varying as a function of the altered applied power.

~~A system according to claim 16,~~ further comprising a lowpass filter coupled across the resistive element for detecting the voltage across thereacross by isolating low frequency signals received from the resistive element.

Claim 20 (original): A system according to claim 16, wherein the control compensation module is further configured to alter a voltage applied to the resistive element.

Claim 21 (original): A system according to claim 16, wherein the control compensation module is further configured to alter a current applied to the resistive element.

Claim 22 (original): A system according to claim 16, wherein the control compensation module comprises a control compensation software module.

Claim 23 (original): A system according to claim 16, wherein the control compensation module comprises control compensation circuitry.

Claim 24 (original): A system according to claim 16, wherein the resistive element is a first resistive element, the system further comprising:

a second resistive element located thermally proximate the first resistive element and having a voltage thereacross, the voltage varying as a function of a temperature of the second resistive element, and

wherein the comparison circuitry is configured to compare the voltage across the second resistive element with a predetermined value, and to generate an error signal based on the comparison, and

wherein the control compensation module is configured to alter a power applied to the second resistive element based on the comparison, the temperature of the second resistive element varying as a function of the altered applied power and the temperature of the first resistive element varying with the temperature of the second resistive element due to the thermal proximity.